Department of Psychology – Columbia University
Attention and Perception
GU4229
4 points

Instructor: Alfredo Spagna, Ph.D.

Office: 356 Schermerhorn

Class Meets: Tuesday 10:10am-12pm

Office Hours: schedule appointment

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Course Bulletin Description: This seminar aims to provide an in-depth overview of neuroscientific knowledge regarding two critical cognitive functions: attention and perception. For each topic, results from behavioral studies are combined with those from recent neurocognitive approaches – primarily neuropsychological and functional brain imaging studies – that reveal the underlying neural networks and brain mechanisms.

Prerequisites: Open to Ph.D. students in the Psychology department and graduate students in other related departments, with instructor's permission. Open to advanced undergraduate students who have taken PSYC UN1010 Mind, Brain, & Behavior or an equivalent introductory course in neuroscience or cognitive psychology, with instructor's permission.

Full Description: How do we form a picture of the world around us? Is there a difference between the physical world and our perceptual world? The course explores how light, sound, touch, etc. get transformed into signals in the nervous system (sensation), how the brain processes and interprets those signals (perception), and how some of those signals are further selected (attention) to guide our thought and actions. The course begins with coverage of the evolution and foundations of the new field of Cognitive Neuroscience and the structural and functional brain-imaging techniques that made this field possible. Then, the behavioral and neurocognitive data on such cognitive processes as visual perception, object and face recognition, attention and executive processes are presented in the context of current theoretical frameworks.
Specifically:

- The course will provide an introduction to the structure and function of sense organs and will discuss psychophysical and neurophysiological experiments that are used to elucidate the information processing steps beyond sensory perception.
- Further, the course aims to give students a full appreciation for how a variety of newly developed structural and functional neuroimaging techniques have revolutionized our understanding of brain function by revealing how different cognitive functions are anatomically and physiologically represented in specific brain networks.
- The data from both the behavioral and neurobiological sources are melded together for each topic to show our current thinking on how attentional and perceptual functions are instantiated in the brain, both in terms

of how they are mapped onto specific brain networks and the nature of the calculations performed in the different nodes within these networks.
- Students will also participate in discussions of neuropsychological patient case studies with the goal of demonstrating how data from patients with specific types of brain damage provide important insights into the neural bases of normal cognitive functioning.

Learning Objectives: By the end of the Seminar students are expected to demonstrate their knowledge of:
- The history and methods used in the science of sensation and perception.
- The structure of the major sensory systems.
- The transduction and transmission processes for the major sensory systems.
- Behaviorally-based models and theories of attention and perception.
- The neurobiological bases of normal and abnormal attention and perception.
- How studies of abnormal cognitive function inform us about the nature of normal brain function.

Role in the Psychology curriculum: GU4229 is a seminar open to graduate students and advanced undergraduate students. It fulfills the following degree requirements:
- For undergraduates pursuing a Psychology major or concentration in the College or GS or the Psychology Postbac certificate, it meets the Group I (Perception & Cognition) distribution requirement.
- For Psychology majors and Psychology Postbac students, it fulfills the seminar requirement.
- For undergraduates pursuing the Neuroscience & Behavior major, it fulfills the advanced seminar requirement in the Psychology portion of the major.
- Graduate students in Psychology and junior and senior Neuroscience & Behavior and Psychology majors will have priority for registration. However, for non-majors in the College and in G.S., GU4229 could count as one term of the natural science requirement, provided the student has taken the prerequisite courses and has instructor permission.

Readings: There is no textbook required for this course. Readings will comprise scientific articles from peer – reviewed journals, literature reviews, and commentaries in the fields of attention and perception. The readings listed in the Schedule below are provisional but illustrative of the types of articles we will be reading and discussing. All readings will be posted in PDF form on CourseWorks.

Schedule: The calendar below details topics, readings, and assignments for each class period. It may be subject to changes to reflect interests of students. Students are responsible to be prepared to discuss the assigned readings for each class period. Typically, each class period will begin with a short lecture providing the background in neuroscience necessary to better explore the issue of the day. The majority of class time will be devoted to student presentations and student-led discussions (detailed in Course Requirements). As an example, for the class on Visual Attention (week 8), the Instructor will give a brief lecture on the neural correlates of attention, providing an overview of the field and highlighting recent findings from empirical research. Then one student may present the findings and implications of the Xuan et al. (2016) article and another might present the findings and implications of the Corbetta et al. (2008) article. Then, the remainder of class time will be devoted to a discussion addressing questions such as: which are the major commonalities and differences in the two models? How can we reconcile the two theories? What is the relation between results from these studies and neuropsychological findings? Optional, supplementary readings are also included for those who might be interested in exploring the topic of a specific class more in depth, and students are encouraged to do so, especially by contributing to the discussion with more recent knowledge.

Date	Topics and Assignments	Readings
Week 1 Jan 16th	**Introduction to the Seminar:** overview of the topics and History of Neuroscience	Supplementary Readings 1. Horwitz, B., Friston, K. J., and Taylor, J. G. (2000). Neural modeling and functional brain imaging: An overview. *Neural Networks, 13*(8–9), 829–846. 2. Visit the Cyber Museum on Neurosurgery Supplementary Material: video 3. "How the Brain Works: Part 1" 4. Rebecca Saxe: The Brain vs The Mind 5. Joseph Redmon: How Neural Networks learn
Week 2 Jan 23rd	**The Eye and the Central Visual System** *Reading response due*	1. Zeki, S., Watson, J. D., Lueck, C. J., Friston, K. J., Kennard, C., & Frackowiak, R. S. (1991). A direct demonstration of functional specialization in human visual cortex. *Journal of neuroscience*, 11(3), 641-649. 2. Belliveau, J. W., Kennedy, D. N., McKinstry, R. C., Buchbinder, B. R., Weisskoff, R., Cohen, M. S., ... & Rosen, B. R. (1991). Functional mapping of the human visual cortex by magnetic resonance imaging. *Science*, *254*(5032), 716-719. 3. Wandell, B. A., Dumoulin, S. O., & Brewer, A. A. (2007). Visual field maps in human cortex. *Neuron*, *56*(2), 366-383. 4. Peelen, M. V., & Downing, P. E. (2017). Category selectivity in human visual cortex: Beyond visual object recognition. *Neuropsychologia*. Supplementary Readings 5. Gaglianese, A., Vansteensel, M. J., Harvey, B. M., Dumoulin, S. O., Petridou, N., & Ramsey, N. F. (2017). Correspondence between fMRI and electrophysiology during visual motion processing in human MT+. *NeuroImage*. 6. Liu, H., Agam, Y., Madsen, J. R., & Kreiman, G. (2009). Timing, timing, timing: fast decoding of object information from intracranial field potentials in human visual cortex. *Neuron*, *62*(2), 281-290. Supplementary Material: video 7. The Human Eye 8. Perceiving is believing 9. Color Blindness

Week 3 Jan 30th	**Hearing and Vestibular System** *Reading response due*	1. Wasserthal, C., Brechmann, A., Stadler, J., Fischl, B., & Engel, K. (2014). Localizing the human primary auditory cortex in vivo using structural MRI. *Neuroimage*, *93*, 237-251. 2. De Martino, F., Moerel, M., Ugurbil, K., Goebel, R., Yacoub, E., & Formisano, E. (2015). Frequency preference and attention effects across cortical depths in the human primary auditory cortex. *Proceedings of the National Academy of Sciences*, *112*(52), 16036-16041. 3. Sharpee, T. O., Atencio, C. A., & Schreiner, C. E. (2011). Hierarchical representations in the auditory cortex. *Current opinion in neurobiology*, *21*(5), 761-767. 4. Winkowski, D. E., Nagode, D. A., Donaldson, K. J., Yin, P., Shamma, S. A., Fritz, J. B., & Kanold, P. O. (2017). Orbitofrontal cortex neurons respond to sound and activate primary auditory cortex neurons. *Cerebral Cortex*, 1-12. Supplementary Readings 5. Saenz, M., & Langers, D. R. (2014). Tonotopic mapping of human auditory cortex. *Hearing research*, *307*, 42-52. 6. Moerel, M., De Martino, F., & Formisano, E. (2012). Processing of natural sounds in human auditory cortex: tonotopy, spectral tuning, and relation to voice sensitivity. *Journal of Neuroscience*, *32*(41), 14205-14216. Supplementary Material: video 7. Auditory Transduction and Music 8. Organ of Corti and Physiology of Hearing
Week 4 Feb 6th	**Touch and Somatosensation** *Reading response due* Paper proposal due	1. Iwamura, Y. (1998). Hierarchical somatosensory processing. *Current opinion in neurobiology*, *8*(4), 522-528. 2. Hu, Y., Lou, W., Peng, W., Hu, L., Zhang, Z., & Wang, J. Z. (2015). Source differences in ERP components between pain and tactile processing. In *Advances in Cognitive Neurodynamics (IV)* (pp. 199-202). Springer, Dordrecht. 3. Volkers, L., Mechioukhi, Y., & Coste, B. (2015). Piezo channels: from structure to function. *Pflügers Archiv-European Journal of Physiology*, *467*(1), 95-99. 4. O'connor, D. H., Hires, S. A., Guo, Z. V., Li, N., Yu, J., Sun, Q. Q., ... & Svoboda, K. (2013). Neural coding during active somatosensation revealed using illusory touch. *Nature neuroscience*, *16*(7), 958-965. Supplementary Readings

		5. Lacey, S., & Sathian, K. (2016). Crossmodal and multisensory interactions between vision and touch. In *Scholarpedia of Touch* (pp. 301-315). Atlantis Press. 6. Bremner, A. J. (2016). Developing body representations in early life: combining somatosensation and vision to perceive the interface between the body and the world. *Developmental Medicine & Child Neurology*, *58*(S4), 12-16. Supplementary Material: video 7. The Homunculus: a sensory map of the human body 8. Touch and the Dorsal Columns-Medial Lemniscus
Week 5 Feb 13th	**Olfaction** *Reading response due*	1. Bushdid, C., Magnasco, M. O., Vosshall, L. B., & Keller, A. (2014). Humans can discriminate more than 1 trillion olfactory stimuli. *Science*, 343(6177), 1370-1372. 2. Merrick, C., Godwin, C. A., Geisler, M. W., & Morsella, E. (2013). The olfactory system as the gateway to the neural correlates of consciousness. *Frontiers in Psychology*, 4. 3. Huart, C., Rombaux, P., & Hummel, T. (2013). Plasticity of the human olfactory system: the olfactory bulb. *Molecules*, *18*(9), 11586-11600. 4. Vedaei, F., Oghabian, M. A., Firouznia, K., Harirchian, M. H., Lotfi, Y., Fakhri, M., ... & Ardalan, F. A. (2017). The Human Olfactory System: Cortical Brain Mapping Using fMRI. *Imaging*, *4*, 3. Supplementary Readings 5. Mobley, A. S., Rodriguez-Gil, D. J., Imamura, F., & Greer, C. A. (2014). Aging in the olfactory system. *Trends in neurosciences*, 37(2), 77-84. 6. Saiz-Sanchez, D., Flores-Cuadrado, A., Ubeda-Bañon, I., de la Rosa-Prieto, C., & Martinez-Marcos, A. (2016). Interneurons in the human olfactory system in Alzheimer's disease. *Experimental neurology*, *276*, 13-21. Supplementary Material: video 7. Olfaction: Structure and Function 8. Neuroanatomy of the Olfactory System
Week 6 Feb 20th	**Taste** *Reading response due*	1. Velasco, C., Woods, A. T., Petit, O., Cheok, A. D., & Spence, C. (2016). Crossmodal correspondences between taste and shape, and their implications for product packaging: a review. *Food Quality and Preference*, *52*, 17-26.

		2. Spence, C. (2015). Multisensory flavor perception. *Cell*, *161*(1), 24-35. 3. Breslin, P. A. (2013). An evolutionary perspective on food and human taste. *Current Biology*, *23*(9), R409-R418. 4. Iannilli, E., Noennig, N., Hummel, T., & Schoenfeld, A. M. (2014). Spatio-temporal correlates of taste processing in the human primary gustatory cortex. *Neuroscience*, *273*, 92-99. Supplementary Readings 5. Carvalho, F. R., Van Ee, R., Rychtarikova, M., Touhafi, A., Steenhaut, K., Persoone, D., & Spence, C. (2015). Using sound-taste correspondences to enhance the subjective value of tasting experiences. *Frontiers in psychology*, *6*. 6. Liu, D., Archer, N., Duesing, K., Hannan, G., & Keast, R. (2016). Mechanism of fat taste perception: Association with diet and obesity. *Progress in lipid research*, *63*, 41-49. Supplementary Material: video 7. Taste and Smell 8. Babies Eating Lemons for the First Time
Week 7 Feb 27th	**The Resting Brain, Attention, and Consciousness** *Reading response due* First draft due	1. Raichle, M. E. (2015). The brain's default mode network. *Annual review of neuroscience*, *38*, 433-447. 2. Petersen, S. E., & Posner, M. I. (2012). The attention system of the human brain: 20 years after. *Annual review of neuroscience*, *35*, 73-89. 3. Spadone, S., Della Penna, S., Sestieri, C., Betti, V., Tosoni, A., Perrucci, M. G., ... & Corbetta, M. (2015). Dynamic reorganization of human resting-state networks during visuospatial attention. *Proceedings of the National Academy of Sciences*, *112*(26), 8112-8117. 4. Szczepanski, S. M., Pinsk, M. A., Douglas, M. M., Kastner, S., & Saalmann, Y. B. (2013). Functional and structural architecture of the human dorsal frontoparietal attention network. *Proceedings of the National Academy of Sciences*, *110*(39), 15806-15811. Supplementary Readings 5. Shea, N., & Frith, C. D. (2016). Dual-process theories and consciousness: the case for 'Type Zero' cognition. Neuroscience of Consciousness, 2016(1), niw005. 6. Chica, A. B., de Schotten, M. T., Bartolomeo, P., & Paz-Alonso, P. M. (2017). White matter microstructure of attentional networks predicts attention and consciousness

		functional interactions. *Brain Structure and Function*, 1-16. Supplementary Material: video 7. Michael Posner on the anatomy of attentional networks 8. PNAS: Time-resolves resting state brain networks 9. Chalmers: How to explain consciousness
Week 8 Mar 6th	**Visual Attention** *Reading response due*	1. Xuan, Bin, et al. (2016): "The activation of interactive attentional networks." *NeuroImage* 129, 308-319. 2. Corbetta, M., Patel, G., & Shulman, G. L. (2008). The reorienting system of the human brain: from environment to theory of mind. *Neuron*, *58*(3), 306-324. 3. Battistoni, E., Stein, T., & Peelen, M. V. (2017). Preparatory attention in visual cortex. *Annals of the New York Academy of Sciences*. 4. Baldauf, D., & Desimone, R. (2014). Neural mechanisms of object-based attention. *Science*, *344*(6182), 424-427. Supplementary Readings 5. Patel, G. H. et al., (2015). Functional evolution of new and expanded attention networks in humans. *Proceedings of the National Academy of Sciences*, *112*(30), 9454-9459. 6. Seymour, J. L., Low, K. A., Maclin, E. L., Chiarelli, A. M., Mathewson, K. E., Fabiani, M., ... & Dye, M. W. (2017). Reorganization of neural systems mediating peripheral visual selective attention in the deaf: An optical imaging study. *Hearing research*, *343*, 162-175. Supplementary Material: video 7. Selective Attention Test 8. Selective Attention Test #2 9. Posner Cueing Task
Mar 13th	**Spring Recess**	**No Class Scheduled**
Week 9 Mar 20th	**Auditory Attention** *Reading response due*	1. Lee, A. K., et al., (2016). Switching of auditory attention. *The Journal of the Acoustical Society of America*, *140*(4), 3046-3046. 2. Rimmele, J. M., et al., (2015). The effects of selective attention and speech acoustics on neural speech-tracking in a multi-talker scene. *Cortex*, *68*, 144-154. 3. Kaya, E. M., & Elhilali, M. (2017). Modelling auditory attention. *Phil. Trans. R. Soc. B*, *372*(1714), 20160101. 4. Wöstmann, M., Herrmann, B., Maess, B., & Obleser, J. (2016). Spatiotemporal dynamics of auditory attention synchronize with speech. *Proceedings of the National*

		Academy of Sciences, *113*(14), 3873-3878. Supplementary Readings 5. Smucny, J., et al., (2016). Neuronal effects of nicotine during auditory selective attention in schizophrenia. *Human brain mapping*, 37(1), 410-421. 6. Lakatos, P., Barczak, A., Neymotin, S. A., McGinnis, T., Ross, D., Javitt, D. C., & O'Connell, M. N. (2016). Global dynamics of selective attention and its lapses in primary auditory cortex. *Nature neuroscience*, *19*(12), 1707-1717. Supplementary Material: video 7. Auditory Distraction Test 8. The Cocktail Party Effect: Selective Hearing
Week 10 Mar 27th	**Attention to Touch** *Reading response due*	1. Johansen-Berg, H., Christensen, V., Woolrich, M., & Matthews, P. M. (2000). Attention to touch modulates activity in both primary and secondary somatosensory areas. *Neuroreport*, *11*(6), 1237-1241. 2. Jones, A., & Forster, B. (2013). Independent effects of endogenous and exogenous attention in touch. *Somatosensory & motor research*, *30*(4), 161-166. 3. Gomez-Ramirez, M., Hysaj, K., & Niebur, E. (2016). Neural mechanisms of selective attention in the somatosensory system. *Journal of neurophysiology*, *116*(3), 1218-1231. 4. Puckett, A. M., Bollmann, S., Barth, M., & Cunnington, R. (2017). Measuring the effects of attention to individual fingertips in somatosensory cortex using ultra-high field (7T) fMRI. *NeuroImage*, *161*, 179-187. Supplementary Readings 5. Sambo, C. F., & Forster, B. (2011). Sustained spatial attention in touch: modality-specific and multimodal mechanisms. *The Scientific World Journal*, *11*, 199-213. Supplementary Material: video 6. Pain perception: an introduction 7. Tactile Rendering of 3D Features on Touch Surfaces
Week 11 April 3rd	**Olfactory Attention** *Reading response due*	1. García-Cabezas, M. Á., & Barbas, H. (2014). A direct anterior cingulate pathway to the primate primary olfactory cortex may control attention to olfaction. *Brain Structure and Function*, *219*(5), 1735-1754. 2. Keller, A. (2011). Attention and olfactory consciousness. *Frontiers in Psychology*, *2*. 3. Plailly, J., Howard, J. D., Gitelman, D. R., & Gottfried, J. A. (2008). Attention to odor modulates thalamocortical

		connectivity in the human brain. *Journal of Neuroscience*, *28*(20), 5257-5267. 4. Zelano, C., Bensafi, M., Porter, J., Mainland, J., Johnson, B., Bremner, E., ... & Sobel, N. (2005). Attentional modulation in human primary olfactory cortex. *Nature neuroscience*, *8*(1), 114. Supplementary Readings 5. Bordegoni, M., Carulli, M., & Shi, Y. (2017, January). Demonstrating the Effectiveness of Olfactory Stimuli on Drivers' Attention. In *International Conference on Research into Design* (pp. 513-523). Springer, Singapore. Supplementary Material: video 6. Human Scent Tracking 7. From Chemical to Smells
Week 12 April 10th	**Attention to Taste** *Reading response due*	1. Bartoshuk, L. M. (2000). Comparing sensory experiences across individuals: Recent psychophysical advances illuminate genetic variation in taste perception 2. van der Wal, R. C., & van Dillen, L. F. (2013). Leaving a flat taste in your mouth: task load reduces taste perception. *Psychological science*, *24*(7), 1277-1284. 3. Yeung, A. W. K., Tanabe, H. C., Suen, J. L. K., & Goto, T. K. (2016). Taste intensity modulates effective connectivity from the insular cortex to the thalamus in humans. *Neuroimage*, *135*, 214-222. 4. Dalenberg, J. R., Hoogeveen, H. R., Renken, R. J., Langers, D. R., & ter Horst, G. J. (2015). Functional specialization of the male insula during taste perception. *NeuroImage*, *119*, 210-220. Supplementary Readings 5. Yan, K. S., & Dando, R. (2015). A crossmodal role for audition in taste perception. *Journal of Experimental Psychology: Human Perception and Performance*, *41*(3), 590. Supplementary Material: video The Difference between taste and flavor
Week 13 April 17th	**Supramodal Attention** *Reading response due*	1. Walz, J. M., Goldman, R. I., Carapezza, M., Muraskin, J., Brown, T. R., & Sajda, P. (2013). Simultaneous EEG-fMRI reveals temporal evolution of coupling between supramodal cortical attention networks and the brainstem. *Journal of Neuroscience*, 33(49), 19212-19222. 2. Chen, T., Michels, L., Supekar, K., Kochalka, J., Ryali, S., & Menon, V. (2015). Role of the anterior insular cortex in

		integrative causal signaling during multisensory auditory–visual attention. *European Journal of Neuroscience*, 41(2), 264-274. 3. Morís Fernández, L., Macaluso, E., & Soto-Faraco, S. (2017). Audiovisual integration as conflict resolution: The conflict of the McGurk illusion. *Human Brain Mapping*. 4. Banerjee, S., Snyder, A. C., Molholm, S., & Foxe, J. J. (2011). Oscillatory alpha-band mechanisms and the deployment of spatial attention to anticipated auditory and visual target locations: supramodal or sensory-specific control mechanisms?. *Journal of Neuroscience*, *31*(27), 9923-9932. Supplementary Readings 5. Spagna, A., Mackie, M. A., & Fan, J. (2015). Supramodal executive control of attention. *Frontiers in psychology,* 6. Supplementary Material: video The McGurk Effect
Week 14 April 24th	**Psychiatric and Neurological disorders and Attention dysfunctions** *Reading response due*	1. Matzke, D., Hughes, M., Badcock, J. C., Michie, P., & Heathcote, A. (2017). Failures of cognitive control or attention? The case of stop-signal deficits in schizophrenia. *Attention, Perception, & Psychophysics*, *79*(4), 1078-1086. 2. Lunven, M., & Bartolomeo, P. (2017). Attention and spatial cognition: Neural and anatomical substrates of visual neglect. *Annals of physical and rehabilitation medicine*, 60(3), 124-129. 3. Mackie, M. A., & Fan, J. (2016). Reduced efficiency and capacity of cognitive control in autism spectrum disorder. *Autism Research*, *9*(3), 403-414. 4. Friedman, L. A., & Rapoport, J. L. (2015). Brain development in ADHD. *Current opinion in neurobiology*, *30*, 106-111. Supplementary Readings 5. Megreya, A. M. (2016). Face perception in schizophrenia: a specific deficit. *Cognitive neuropsychiatry*, *21*(1), 60-72. Supplementary Material: video 6. Associative agnosia 7. A Visual Neglect Patient
Week 15 May 1st	**Study Day**	
Week 16 May 8th	Final Paper Due	

Course Requirements:

Class preparation and participation: The assigned readings are designed to expand your knowledge on the latest advancement in the field of neuroscience of attention and perception and to hone your critical thinking skills. The topics discussed during the seminars are complex, leaving plenty of space to discuss and debate. Strong preparation and participation will enable us to have high-level, thought-provoking discussion.

Thorough reading enables thoughtful discussion. The night before each class period you will be asked to submit a short (one-paragraph) reading response to CourseWorks by 6:00pm. Goals of these reading responses are to help you keep current on course topics and to help me understand where students may have had difficulty with the readings and which topics students were most intrigued by and, therefore, which areas may warrant more focus during class time. Each reading response should be no more than a short paragraph, either discussing something interesting you found in the readings or asking substantive questions about concepts in the reading you found challenging. As the goal of these assignments is to keep you up to speed and to help guide my teaching and our class discussions, the assignments will just be graded on a pass/fail basis. (I can only accept responses submitted before the deadline.)

It is important to engage with the material during class discussions, since your active participation in these discussions will contribute to your final grade. If you feel that regularly contributing to class discussions is difficult for you, you should raise this issue with me as soon as possible. In such cases, we might be able to work out a way for you to participate thoughtfully through your reading responses.

Generally speaking, effective class preparation and participation could include:

- Asking insightful or clarifying questions.
- Connecting the reading to other reading we've done in the course or reading you've done on your own, drawing parallels and/or contrasts among findings.
- Actively listening to fellow classmates and responding to their ideas.
- Offering thoughtful critiques of the research methodology and providing suggestions for how it might be improved.
- Bringing in outside sources – potentially from the news media or other sources – that shed light on neuroscience findings or that illustrate ways in which these findings are interpreted and applied.

Leading discussions: You will be responsible for presenting an article and leading the class discussion for at least two class meetings. I'll provide more information and give a demonstration of the sort of presentation I'm looking for in the first week of class. But, briefly, you'll walk us through your assigned article, describing the methods and results, highlighting any strengths or weaknesses of the study design, and giving your thoughts on the meaning and importance of the findings. I'll ask you to complete a handout and email that to me at least two days before the date of your presentation, so that I can provide feedback in advance of your actual presentations. As the goal is for you to become more skilled in presenting research findings and leading discussions, in calculating grades, the second presentation will be weighted more heavily than the first.

Research paper: The culmination of this course is the creation of a novel research proposal relating to the material of the class. Good writing is good thinking, and a primary goal of this assignment is to help you hone your writing and critical thinking skills. The process of writing the research paper follows three steps:

1. Early in the course you will be asked to identify a topic related to the class. As soon as you identify it, you are expected to email me stating your research topic, so that together we can decide whether it is appropriate. Such topic proposals should include a short paragraph about your intended topic and a list of at least five (and no more than 10) references you intend to use. I will make suggestions regarding focus, potential sources, etc. **Deadline for Paper Proposal is set to February the 6th.**
2. Once your topic is approved, you will begin work on a first draft of the paper. Generally, you want to choose a topic that is appropriately narrow to address in an 8-10 page (not including references) paper. The paper will first introduce the topic, then review recent knowledge and advancements in the field, and then discuss future directions / breakthroughs you identify. **Deadline for Paper Proposal is set to February the 27th.**
3. Towards that end, I will provide comments and suggestions on your first draft, and you will be expected to make substantive changes – not just copyediting, but rather larger edits such as, reworking entire sections, drawing on new sources, and providing more analysis. The final draft of the paper will be graded not only as a standalone paper but also in how it demonstrates improvement upon the earlier draft. **Deadline May 8th.**

Grading:

Grades will be calculated based on the percentages outlined below.

A. Class preparation and participation…………………………………………25%
- Reading responses 10%
- Contribution to class discussion 15%

B. Discussion leading………………………………………………………………35%
- First presentation 15%
- Second presentation 20%

C. Research paper…….…………………………………………………………….40%
- Proposal 5%
- First draft 10%
- Final draft 25%

Class policies: Important Information below; please read carefully!

Academic integrity: As members of this academic community, we are responsible for maintaining the highest level of personal and academic integrity: "[E]ach one of us bears the responsibility to participate in scholarly discourse and research in a manner characterized by intellectual honesty and scholarly integrity.… The exchange of ideas relies upon a mutual trust that sources, opinions, facts, and insights will be properly noted and carefully credited. In practical terms, this means that, as students, you must be responsible for the full citations of others' ideas in all of your research papers and projects… [and] you must always submit your own work and not that of another student, scholar, or internet agent" (from the Columbia University Faculty Statement on Academic Integrity).

Cheating and Plagiarism – whether intentional or inadvertent – is a serious violation of academic integrity. Plagiarism is the practice of claiming or implying original authorship of (or incorporating materials from) someone else's written or creative work, in whole or in part, without adequate acknowledgement. If you have any questions about what constitutes plagiarism and/or how to properly cite sources, please come to me. I am more than happy to help. Similarly, if you put yourself in a situation, e.g., starting an assignment very late, in which you think your best option might be to cut some corners, see me. It is far better to have a few points deducted from a paper than to compromise your academic integrity and potentially put your academic standing in jeopardy.

Attendance: Class participation is the foundation of this course. The instructor realizes that a student may need (for whatever reason) to miss a class; as long as an excused absence is documented (e.g., a dean's note), it will not negatively impact your grade, but please inform me of the absence as soon as possible. However, excessive absences will negatively impact the likelihood of succeeding in this course. You will still be responsible for the work due in that class, e.g., reading responses and interim deadlines for the final paper.

Late assignments: It is not fair for you to get more time on your assignments than your peers. If there's an appropriate reason for turning an assignment in late, please discuss it with me well in advance so that we can work out an arrangement. I will have to penalize late assignments.

Class Etiquette: Research shows that many of us think we're good multi-taskers. Research also shows that most of us are not. If you typically take notes or read papers on a laptop, you can, of course, use the laptop in class. But, out of respect for your classmates and in the interest of your own learning and ability to actively participate in. **Cell phones** must be silenced and put away prior to the start of class. Interruptions in the lecture as a result of these devices will not be tolerated.

Students with Disabilities: Students with special needs who may require classroom/assignment accommodations should make an appointment with me before or during the first week of class. You should also contact the Office of Disability Services (ODS) in Lerner Hall before the start of the course to register for these accommodations. The procedures for registering with ODS can be found here.

Changes to the Syllabus might happen during the course. The most recent version will always be posted to Courseworks.